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PART IV

ENVIRONMENTAL PROTECTION AGENCY

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CONTROL OF TOXIC SUBSTANCES

General Provisions and Inventory Reporting Requirements; Supplemental Notice

ENVIRONMENTAL PROTECTION AGENCY

[40 CFR Part 700, 710]

[OTS-081001A FRL 707-6]

TOXIC SUBSTANCES CONTROL

General Provisions and Inventory Reporting Requirements; Supplemental Notice

AGENCY: Office of Toxic Substances, Environmental Protection Agency.

ACTION: Supplemental notice to rules proposed pursuant to the authority of Section 8(a), the Toxic Substances Control Act (90 Stat. 2003; 15 U.S.C. 2601, et seq., hereinafter referred to as TSCA).

SUMMARY: This supplemental notice provides additional information pertaining to the proposed inventory reporting regulations which would establish a new 40 CFR Part 700 and 710. Section 1 of this notice, Guide to the Use of the TSCA Candidate List of Chemical Substances, explains the meaning of the various informational entries contained in the Candidate List, describes the organization and content of each section of the list, and elaborates on instructions for reporting chemical substances for the inventory. Comment is solicited on the clarity of the guide. Section 2, Concerning Appendix A of the Candidate List, specifies the criteria used for selecting minerals to be included in Appendix A of the Candidate List and lists those minerals currently under consideration for inclusion there. Proposed additions to, deletions from, or exclusions from the minerals list in accordance with the criteria stated in Section 2 are solicited.

DATES: Comments must be received on or before May 9, 1977.

FOR FURTHER INFORMATION CONTACT:

Cynthia C. Kelly or George Semeniuk, Office of Toxic Substances (WH-557), Environmental Protection Agency, 401 M Street, SW., Washington, D.C. 20460, 202-755-4880.

SUPPLEMENTARY INFORMATION: On March 9, 1977, the Environmental Protection Agency (EPA) published in the FEDERAL REGISTER (42 FR 13130) proposed regulations which would establish a new 40 CFR Part 700 and 710. Part 700, General Provisions, would prescribe the scope of the rules under TSCA and definitions applicable to such rules. Part 710, Inventory Reporting, would prescribe what chemical substances must be reported for inclusion on an inventory of chemical substances required by Section 8(b) of TSCA; procedures for reporting chemical substances for the inventory; exemptions from such reporting requirements and certain prohibitions; and procedures for handling claims of confidentiality.

As discussed in the preamble to the proposed regulations, a Candidate List of chemical substances would be used to simplify reporting of chemical substances for the inventory. Soon, EPA will publish in the FEDERAL REGISTER a notice of availability of that Candidate List of chemical substances. Following procedures proposed at § 710.4, a person intending to report for the inventory a chemical substance which appears on the Candidate List could do so by deriving the necessary information concerning that chemical substances from the list, and by completing, signing, and submitting to EPA inventory reporting Form A (EPA Form No. __). A person intending to report for the inventory a chemical substance not identified on the Candidate List would do so by completing, signing, and submitting to EPA inventory reporting Form B (EPA Form No. __). Proposed inventory reporting Forms A and B were published in Appendix I of the proposed regulations.

Section 1 of this notice, Guide to the Use of the TSCA Candidate List of Chemical Substances, is intended to assist persons who will be reporting chemical substances for the inventory in understanding how to use the Candidate List and how to report chemical substances using the appropriate forms. EPA specifically solicits comment on the clarity of this assistance document and welcomes suggested improvements.

Section 710.5(a)(5) of the proposed regulations provided that any mineral specifically designated in Appendix A of the Candidate List would be exempt from the reporting requirements for compilation of the inventory and would automatically be included in the inventory. Any mineral not included in Appendix A would be subject to the general reporting requirements.

Section 2 of this notice, Concerning Appendix A of the Candidate List, specifies the criteria used in selecting minerals for Appendix A and lists those minerals currently under consideration for inclusion in that appendix. EPA specifically solicits proposed additions to, deletions from, or exclusions from the minerals list. Any request to add a mineral to the list must clearly show that the mineral satisfies the criteria stated in Section 2 for placing that mineral on the list. Any request for deleting or excluding a mineral from the list must show that the mineral does not satisfy the criteria.

PUBLIC COMMENTS: Interested persons are invited to submit written comments on this supplemental notice. To receive full consideration, comments must be received on or before May 9, 1977. Comments should be filed in triplicate and bear the identifying notation OTS-081001A. Comments should be addressed to the Federal Register Section, Office of Toxic Substances (WH-557), Attention: Vickie Briggs, Environmental Protection Agency, 401 M Street, SW., Washington, D.C., 20460. All written comments filed pursuant to this notice will be available for public inspection in the Office of Toxic Sustances, Room 715, from 8:30 a.m. to 4:30 p.m., Monday through Friday.

In order to provide interested persons an opportunity to comment in person on the proposed regulations and subjects presented in this notice, the Agency, as announced previously in the FEDERAL REGISTER, will hold a public meeting on April 18, 1977 at the Jefferson Memorial Auditorium, Department of Agriculture, 14th and Independence Avenue, SW., Washington, D.C., from 9 a.m. to 4:30 p.m.

EPA will record the proceedings and make a transcript available for public inspection by May 3, 1977 in the Office of Toxic Substances from 8:30 a.m. to 4 p.m. on normal business days.

Subject to time limitations, EPA will give anyone who wants to make an oral presentation an opportunity to do so. Such persons should notify, in writing or by telephone, Mrs. Vickie Briggs, Office of Toxic Substances (WH-557), Environmental Protection Agency, Room 715, East Tower, 401 M Street, SW., Washington, D.C., 20460, telephone number 202-426-9819 by April 11, 1977. Written requests should include the following document control number: OTS-081002.

Dated: March 28, 1977.

KENNETH L. JOHNSON,
Acting Assistant Administrator for Toxic Substances.

SECTION 1—GUIDE TO THE USE OF THE TSCA CANDIDATE LIST OF CHEMICAL SUBSTANCES

INTRODUCTION

The Toxic Substances Control Act (TSCA) requires that the Environmental Protection Agency (EPA) compile and publish by November 11, 1977 an inventory of existing commercial chemical substances. All persons who manufacture, process, or import chemical substances for commercial purposes in the United States should refer to inventory reporting requirements as published in the FEDERAL REGISTER.

To facilitate the reporting process, the TSCA Candidate List of Chemical Substances has been developed. The Candidate List contains information for approximately 30,000 chemical substances. The content of the Candidate List was derived from existing compilations of chemicals. The inclusion of a particular substance does not imply that the substance is or has been manufactured, processed, or imported for commercial purposes. The Candidate List was conceived solely as a tool to support and simplify reporting of chemicals to EPA. If a given chemical substance appears in the Candidate List, the information required for reporting that chemical substance to EPA is contained in the Candidate List. Therefore, persons are strongly encouraged to use the information contained in the Candidate List to the greatest extent possible. Otherwise, a great deal of effort may be expended needlessly.

To make the use of the Candidate List as efficient and reliable as possible, the content has been arranged into four sections, each of which provides a different means of locating chemical substances cited in the Candidate List:

Substance Name Section: an alphabetically ordered listing of chemical substance names for all substances on the Candidate List,

Formula Section: a listing of all substances on the Candidate List of known chemical constitution ordered by molecular formula,[1]

Number Section: a listing of all substances on the Candidate List ordered by Chemical Abstracts Service (CAS) Registry Number, and

Chemical Substances of Unknown or Variable Composition, Complex Reaction Products, and Biological Materials (UVCB) Section: a listing of names of chemical substances on the Candidate List that do not have specific molecular formula representations, grouped into subsets of closely related substances. For the sake of brevity, this section is referred to henceforth as the UVCB Section.

In some cases, it may be necessary to consult more than one section of the Candidate List to determine reliably whether a particular substance is cited in the list. For example, a single chemical substance may be known by a variety of substance names, all of which describe the substance. While a great many names will be present in the Substance Name Section, it is probable that not all names which are known for all the Candidate List substances will be included. The absence of particular name in the Substance Name Section does not mean that the chemical substance is not present in the Candidate List; the substance may be identified in the list by a synonomous substance name. If a user is unable to find the name of the chemical substance in the Substance Name Section, he should consult an alternate section of the Candidate List before concluding that the substance itself is not cited. For a substance which has a definite chemical structure, a user can derive the molecular formula and consult the Formula Section. For a substance which cannot be described by a molecular formula, it may be possible to find an equivalent substance description in the UVCB Section. Depending on the type of information available to a given user, it may be more useful to consult the Formula Section, the Number Section, or the UVCB Section directly, without first examining the Substance Name Section. The four sections of the Candidate List are described in detail in subsequent sections of the Guide.

Appendix A to the Candidate List describes certain chemical substances which are excluded from initial inventory reporting requirements. In some cases, substances which are cited in Appendix A also may appear in the body of the Candidate List. In the event of duplication, Appendix A takes precedence over the Candidate List, i.e., materials which are present in Appendix A need not be reported, even if they also are present in the Candidate List itself.

CAS Registry Numbers. The Chemical Abstracts Service (CAS) Chemical Registry System[2] is a computer-based system that identifies a large number of chemical substances on the basis of their molecular structures and assigns to each substance a unique identifying number called a CAS Registry Number. A small percentage of chemical substance registrations do not have associated structural information that is specfic enough to permit the generation of a unique computer-language description of the structure. CAS Registry Numbers for such substances are assigned through the Chemical Registry System on the basis of manual determinations that the substances are uniquely and consistently identified.

A CAS Registry Number is included for each of the entries in the Candidate List. Registry Numbers have no chemical significance in themselves and are assigned in sequential order as substances are entered into the CAS Chemical Registry System. Each Registry Number designates only one chemical substance in terms of atoms, valence bonds, and stereochemistry, insofar as that substance has been elucidated and defined.

A CAS Registry Number consists of up to nine digits which are separated into three groups by hyphens. The first group, starting from the left, has up to six digits; the second group has two digits; and the final group consists of a single check digit which is used to verify by computer the validity of the total Registry Number.

Certain CAS Registry Numbers which appear in the Candidate List are preceded by asterisks (*). The asterisk is used to highlight Registry Numbers for substances which appear in the UVCB Section. (Those Registry Numbers which are preceded by asterisks do not appear in any of the CAS abstract and index publications and services which cite Registry Numbers.)

CA Index Names. For most chemical substances which have been assigned CAS Registry Numbers, CAS has also assigned a unique, fully systematic name known as the Chemical Abstracts (CA Index Name. CA Index Names are derived according to a rigorous, comprehensive set of nomenclature rules to ensure that a single, preferred name can be constructed for each chemical substance. In most cases, the CA Index Name for a substance contains sufficient information to permit derivation of the corresponding chemical structural diagram.

A CA Index Name is usually included for each substance cited in the Candidate List,[3] except for those substances which appear in the UVCB Section. (Since the latter substances do not appear in the Chemical Substance Indexes to CA, CAS has not generated CA Index Names for them. CAS has, however, selected a preferred form of the names for such substances for inclusion in the Substance Name Section and the Number Section.)

A CA Index Name may be made up of several parts, each of which plays a specific role in completing the description of a chemical substance. The principal portion of a CA Index Name is the "heading parent", which describes the fundamental or most significant feature(s) of the chemical substance, as determined by application of the CAS nomenclature rules. The heading parent forms the basis for ordering CA Index Names in alphabetical listings. Additional parts of the CA Index Name are appended to the heading parent to describe substituent groups attached to the parent substance, derivative information, and stereochemistry. Thus, CA Index Names appear in what is known as "inverted" form. For example, the CA Index Name for styrene is Benzene, ethenyl-; the "uninverted" form of this name is ethenylbenzene. The effect of using CA Index Names in their inverted form is to bring together in the Substance Name Section entries for related substances which have the same heading parent.

Other Substance Names. The Substance Name Section of the Candidate List also includes for most substances the various synonymous names which have been recorded for that substance in the chemical literature which has been analyzed by CAS. The nomenclature file within the CAS Chemical Registry System currently contains almost six million substance names that are associated with more than 3.75 million unique substances. Of these, more than one million names are designations which have been used in the literature; many of these names do not convey information on the chemical constitutions of the substances they represent. Such names are variously described as common names, trade names, trivial names, or nonsystematic names.

Many frequently encountered chemical substances have been identified in the chemical literature by several synonymous names. All such names in the CAS files for Candidate List substances have been selected for inclusion in the Substance Name Section. Thus, the Substance Name Section furnishes access to chemical substances through a variety of commonly used synonyms, as well as through highly systematic CA Index Names. Note, however, that synonyms are excluded from the Formula Section and the Number Section.

Molecular Formulas. The term molecular formula, as used in the Candidate List, means a summation of the actual number and kinds of atoms present in a molecule of a chemical substance.[1] For example, C_6H_6 is the molecular formula for benzene, and C_2H_6 the molecular formula for ethane.

The element symbols in the molecular formulas in the Candidate List are arranged according to the Hill System,[4] as follows:

a. For carbon-containing compounds—C first, followed immediately by H (if present), then the remaining symbols alphabetically.

b. For compounds that do not contain carbon, the order of symbols is strictly alphabetical.

The use of molecular formulas in the Formula Section of the Candidate List is discussed in a later section of this Guide. The comments in the following two paragraphs apply to molecular formulas as they appear in the Substance Name Section and the Number Section. Molecular formulas are not present in the UVCB Section.

In the case of salts and molecular addition compounds (e.g., 1:1 molecular complex of 1,3,5-trinitrobenzene with aluminum chloride), the molecular for-

See footnotes on p. 19303.

mulas for the components are presented separately. Component ratios for salts and molecular addition compounds are specified when known. For example:

Sulfurous acid, disodium salt
$H_2O_3S \cdot 2Na$

A lower case x before the second and any subsequent formulas indicates that the ratio is unknown.

Copolymer formulas also are presented with the formulas of the monomers shown individually. No ratios are indicated for copolymers; the total formula combination for copolymers or the single formula for homopolymers is enclosed in parentheses followed by a subscript, lower case x. For example:

2-Propenenitrile, polymer with 1,3-butadiene and ethenylbenzene
$(C_3H_3N \cdot C_4H_6 \cdot C_8H_8N)_x$

Polymeric repeating unit formulas are enclosed in parentheses and followed by subscript n. End groups, when included in the registration, have the summation of their individual formula units cited at the end of the total formula. For example:

Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- $(C_2H_4O)_nH_2O$

Code Designations. Associated with every entry in the Substance Name Section, the Number Section, and the Formula Section of the Candidate List is a computer checkable alphanumeric called a code designation [5]. Code designations do not appear in the UVCB Section. These alphanumerics were developed solely for the purpose of detecting transcription or keyboarding errors which might occur during the reporting or inventory compiling processes. They have no significance other than providing a link between a particular entry and its location in the Candidate List. Specific instructions for the use of code designations in reporting descriptions of chemical substances are provided in the final section of this Guide.

SUBSTANCE NAME SECTION

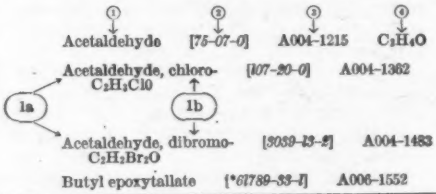
The Substance Name Section consists of an alphabetic listing of names of the substances included in the TSCA Candidate List of Chemical Substances. The names which appear in this section are of three main types: (a) the CA Index Name for most substances other than for those presented in the UVCB Section, (b) names chosen by CAS to represent substances which appear in the UVCB Section, and (c) the various synonymous names by which the substance is known to chemical investigators and in commerce and manufacturing. A sample page from the Substance Name Section appears as Attachment 1.

Names in the Substance Name Section are ordered alphabetically. Locant numbering [6], stereochemical descriptions, and other italicized characters are considered only in ordering names having otherwise identical strings of alphabetic characters. Purely numerical designations appear ahead of the alphabetic listing in increasing numerical order. Alphanumeric designations which have numeric characters preceding the alphabetic characters (eg., 4M2AP) are ordered following the pure numerics, in increasing numerical order of the characters preceding the first alphabetic character. Alphanumeric designations in which the numeric characters are preceded by one or more alphabetic characters (e.g., SQ 1089) are ordered in the main alphabetic sequence based on the string of alphabetic characters. Alphanumeric designations in which numeric characters are separated by punctuation other than a comma are ordered on the basis of the digits preceding the punctuation and not on the basis of the total set of digits (e.g. A 443/31 is ordered between A 435 and A 446). (Note that names containing locants, e.g., 2-Butene, are not considered alphanumeric designations.)

CA Index Names are presented in "inverted" form, with the heading parent appearing first, followed by a comma, and then a description of the substituent groups attached to the parent substance, derivative information, and stereochemistry. Ordering is based first on the heading parent (with all substances sharing a common parent appearing at the same place in the listing) and next on the alphabetic character string in the remainder of the name.

In addition to the name, each entry in this Section contains the CAS Registry Number for the substance, its molecular formula, if known, and a code designation.

ILLUSTRATIVE KEY TO ENTRIES IN THE SUBSTANCE NAME SECTION [7]



1. The *substance name* (1) is the heading and appears in lightface type. The name may be comprised of a heading parent (1a) and an appended descriptive term (1b). When an entry cannot be completed on one line, the second and subsequent lines are indented under the heading.

2. The *CAS Registry Number* (2) appears in lightface italic type, enclosed in brackets.

3. The *code designation* (3) is printed in lightface type.

4. The *molecular formula* (4) appears in lightface type for substances of known chemical constitution.

FORMULA SECTION

In the Formula Section, molecular formulas are listed for all substances of known chemical constitution appearing in the TSCA Candidate List of Chemical Substances. Each formula entry is accompanied by a CA Index Name, a CAS Registry Number, and a code designation, for each substance having that molecular formula. Where two or more substances share the same molecular formula, their names are ordered alphabetically by the principles described for the Substance Name Section. A sample page from the Formula Section appears as Attachment 2.

Element symbols in the molecular formulas are arranged according to the Hill System, as described earlier. The resulting complete molecular formulas are arranged in alphabetical order in the Formula Section, with each chemical element and its particular numerical suffix being considered as a separate unit. Thus, H_4 is ordered before H_6, and all formulas beginning with CH appear ahead of all those beginning with CH_2.

Example:
$Al_2Ca_3O_{14}$
CCl_4
$CHCl_3$
CHNO
CH_2O
CH_3Cl
CO
C_2Ca
$C_2H_4O_2$
$C_2H_3AlBr_2$
CaO_3Ti
H_4Sn

Salts, molecular addition compounds, and copolymers are represented in the Formula Section by the molecular formula for only one of their components, rather than by a summation formula which includes all the components. The molecular formula chosen to represent a substance of this type is the formula of the component whose name is selected as the principal heading for the substance in the CA Chemical Substance Index. [8] For example, the substance "2-Propenenitrile, polymer with 1,3-butadiene and ethenylbenzene" would be found in the Formula Section only at the molecular formula of its principal component, 2-Propenenitrile (C_3H_3N). The substance would not be found at the molecular formula for either of its other components.

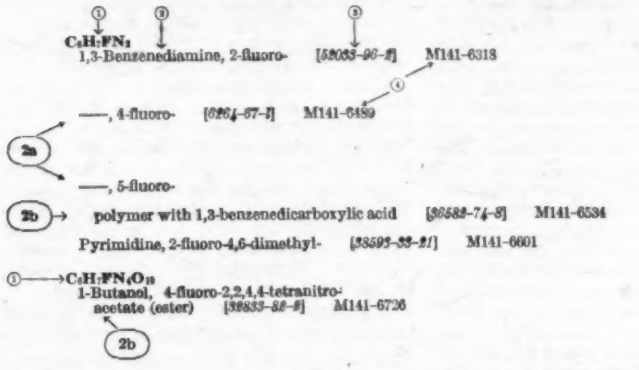
In general, metal salts of acids appear at the molecular formulas of the acids; salts of organic bases with inorganic acids or common organic acids appear at the molecular formulas of the bases; salts with more complex organic acids appear at the molecular formulas of the acids; molecular addition compounds and copolymers appear at the molecular formula of the component chosen to receive the principal index name for the

See footnotes on p. 19303.

substance by the nomenclature policies used for CA indexes.[6]

Thus, a user of the Formula Section who wishes to find an entry for a salt, molecular addition compound, or copolymer is advised to consult entries at the molecular formulas for each of the components before concluding that the substance is not cited in the Formula Section.

ILLUSTRATIVE KEY TO ENTRIES IN THE FORMULA SECTION[7]



1. The *molecular formula* (1) is the heading and appears in boldface type.

2. The *substance names* (2) appear in lightface type, arranged in alphabetic order below the heading. When the name or entry is not completed on one line, the second and subsequent lines are indented. A long dash (2a) replaces the heading parent name when it is repeated. When a modification phrase (2b) is required to complete the substance description, it is half-intended under the parent substance name.

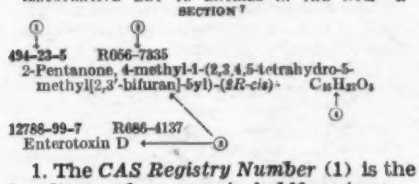
3. The *CAS Registry Number* (3) appears in lightface italic type.

4. The *code designation* (4) appears in lightface type.

NUMBER SECTION

In the Number Section, the substances appearing in the TSCA Candidate List of Chemical Substances are listed in ascending CAS Registry Number order. Each Registry Number entry is accompanied by a name (usually a CA Index Name) for the substance represented by that Registry Number, the molecular formula of the substance, when known, and a code designation. CAS has chosen, for inclusion in the Number Section, preferred forms of substance names for substances of unknown or variable composition, complex reaction products, and biological materials. A sample page from the Number Section appears as Attachment 3.

ILLUSTRATIVE KEY TO ENTRIES IN THE NUMBER SECTION[7]



1. The *CAS Registry Number* (1) is the heading and appears in boldface type.

2. The *code designation* (2) follows the CAS Registry Number, in lightface type.

3. The preferred *substance name* (3) (usually a CA Index Name) appears in lightface type.

See footnotes on p. 19303.

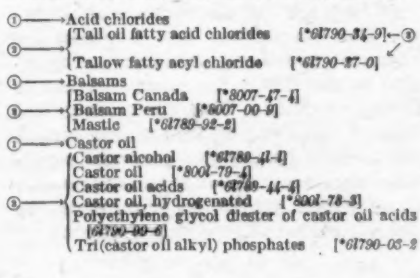
4. The *molecular formula* (4) appears in lightface type for substances of known chemical constitution.

CHEMICAL SUBSTANCES OF UNKNOWN OR VARIABLE COMPOSITION, COMPLEX REACTION PRODCTS, AND BIOLOGICAL MATERIALS (UVCB) SECTION

A small percentage of the chemicals included in the TSCA Candidate List of Chemical Substances are substances of unknown or variable composition, complex reaction products, or biological materials. These are substances which lack an accepted molecular formula representation. They can be found by name in the Substance Name Section of the Candidate List or by CAS Registry Number in the Number Section; they cannot be found in the Formula Section. The UVCB Section is intended to provide an alternate method for finding these substances on the Candidate List. A sample page from the UVCB Section appears as Attachment 4.

Chemical substances in the UVCB Section have been grouped into subsets consisting of relatively small numbers of closely related substances. Typically, the subsets highlight a structural feature of the substance (e.g., the subset headings "Acid chlorides", "Alkaline earth compounds", "Polyoxyalkylenes") or a significant precursor (e.g., "Castor oil", "Tallow"), or provide a general description (e.g., "Resins," "Waxes"). The subset headings used for this Section are presented in the form of a hierarchical listing which precedes the UVCB Section in the Candidate List.

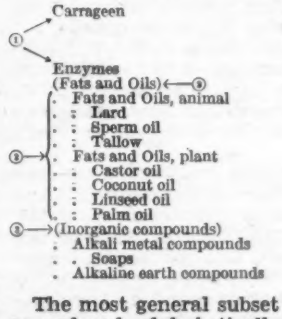
ILLUSTRATIVE KEY TO ENTRIES IN THE UVCB SECTION



In the UVCB Section, each subset heading (1) is listed in alphabetic order. The names of the individual Candidate List substances (2) are then listed in alphabetic order under each subset heading, along with their CAS Registry Numbers (3). The names which appear in the UVCB Section are those which appeared in the original compilations used in deriving the Candidate List; no attempt has been made to standardize the nomenclature used to describe these substances. Please note that the subset headings (1) are *not* Candidate List substances. Only the substances listed under the subset headings along with their CAS Registry Numbers are candidate substances. A subset of substances whose heading is the name of a specific substance (e.g., "Castor oil," "Tallow") will usually include the heading substance as well as all derivatives of that substance which are on the Candidate List.

Most of the substances in the UVCB Section have been assigned to more than one subset heading. For example, the substance Polyethylene glycol diester of castor oil acids [*61790-99-6*] has been placed under the subset headings "Castor oil" and "Polyoxyalkylenes". Naphtenic acid, iron salt [*1338-14-3*] has been placed under "Group VIII element compounds" and "Naphthenic acids". Trimethyl (soybean oil alkl) ammonium chloride [*61790-41-8*] appears under "Quaternary ammonium compounds" and "Soybean oil".

To assist users in searching for substances in the UVCB Section, the subset headings developed for the section are listed precedeing the section itself in a general hierarchy or arrangement of terms in order of increasing specificity. This will serve to guide the user to the most appropriate subsets for the substances of interest. The following key illustrates the organization of subset headings on the hierarchical listing:



The most general subset headings (1) are placed alphabetically at the left margin of the hierarchy. Subset headings of greater specificity (2) are placed alphabetically below the more general headings. Increasing specificity of headings is indicated by a series of periods before the headings. Thus, under the general heading "Fats and Oils" there will be found the following headings of increasing specificity—"Fats and Oils, plant" (preceded by one period), and under it "Castor oil" (preceded by two periods). Terms of hierarchical importance which have not yet been used as

subset headings but which are necessary to provide a logical framework for the hierarchy are enclosed in parentheses (3).

A searcher wishing to determine whether a particular substance, which lacks a molecular formula representation, is on the Candidate List but identified by a name which the searcher did not anticipate should check the names listed under the appropriate subset heading(s) in the UVCB Section. To determine the appropriate subset heading(s), the searcher should first scan the hierarchical list of subset headings and select the most specific headings which are applicable for the material of interest. A substance which falls within a given sequence of subset headings of increasing specificity (e.g., "Fats and Oils;" "Fats and Oils, plant;" "Coconut oil") will be found only under the most specific heading in the sequence which is applicable. In some cases, the user will find the substance fits into a fairly specific subset because the substance is one of a large number of related substances in the UVCB Section (e.g., the sodium salt of sulfated coconut oil will be found under "Coconut oil"). In other cases, the most specific applicable subset may be very generic because the substance does not come from a class of related materials which has been judged large enough to justify a separate subset (e.g., the sodium salt of sulfated mustard seed oil will be found under "Fats and Oils, plant").

COMMENTARY ON INSTRUCTIONS FOR REPORTING

There are two forms for reporting substances to be included in the TSCA Inventory of Chemical Substances. Draft forms were published with the proposed regulations for compiling the inventory on March 9, 1977 in the FEDERAL REGISTER (42 FR 13130). After receiving public comment, these forms may be amended. Accordingly, this commentary on completing the forms may be amended.

The first form, Form A, is for reporting those substances which appear on the Candidate List. The second form, Form B, is for reporting those substances which could not be found on the Candidate List.

Two identifying numbers from the Candidate List are to be recorded in the appropriate columns on Form A for the substances proposed for inclusion on the TSCA Inventory. One is the CAS Registry Number which should be recorded in the same format as found on the Candidate List (i.e., with hyphens, and with a preceding asterisk where appropriate); enclosing brackets need not be recorded. The second number to be recorded for each substance is a code designation which appears along with the name of each substance in the Substance Name Section, the Formula Section, and the Number Section. For a particular substance, different code designations appear for that substance in each of these sections; all such code designations are valid for that substance and any one of them may accompany the CAS Registry Number for the substance when it is reported. Code designations have not been included as part of the substance identification information in the UVCB Section. Persons reporting substances found in the UVCB Section are asked to record (1) the CAS Registry Number found in the UVCB Section and (2) the code designation which appears with that same CAS Registry Number in the Number Section. (Because more than one name appears for most substances on the Candidate List, the names found in the UVCB Section and in the Number Section for a given CAS Registry Number may not be identical; nevertheless, the names should be synonymous.)

Form B is for reporting substances which could not be found on the Candidate List and which are proposed for inclusion on the TSCA Inventory. It is essential that chemical substances proposed for addition to the TSCA Inventory be identified as clearly and precisely as possible. Items 5, 6, and 7 on Form B are used for reporting the substance description.

To report a chemical substance which is not found on the Candidate List and for which a CAS Registry Number is known, complete Form B by checking the box provided in Item 5 of Form B and by listing in Item 7 the appropriate CAS Registry Number along with a corresponding substance name. No additional chemical structure information need be entered on Form B if the CAS Registry Number and substance name are listed. One copy of Form B may be used to report as many chemical substances as practical, for which CAS Registry Numbers are known. Care should be taken to ensure that the CAS Registry Number being reported does indeed identify precisely the substance proposed for inclusion on the Inventory. CAS Registry Numbers are highly specific. Different positional and stereochemical isomers have distinct CAS Registry Numbers. Similarly, salts of acids and bases have CAS Registry Numbers which are distinct from those of the acids or bases themselves. To help ensure that the proper CAS Registry Numbers have been selected, one substance name should be included for each Number reported. CAS Registry Numbers should not be reported when there is any doubt about their applicability for the substances of interest.

When CAS Registry Numbers are not known for substances proposed for inclusion on the TSCA Inventory, Items 6 and 7 on Form B should be completed and only one substance should be reported on each copy of Form B.

In Item 6 of Form B, indicate by checking the appropriate box whether the chemical substance proposed for addition to the TSCA Inventory belongs to Class 1 or Class 2. Class 1 substances are distinct chemical entities which can be represented by definite chemical structure diagrams. Class 2 substances are those which cannot be represented by definite chemical structure diagrams.

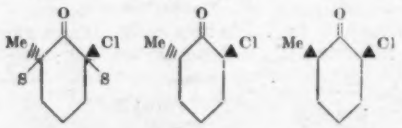
One or more names should be proposed in Item 6 for each substance.

In the case of a Class 1 substance, propose if possible, a systematically derived name that uniquely defines the substance. Also provide the common names by which the substance is identified in the scientific and technical literature, or in product listings. Colour Index names or constitution numbers are the preferred means of identification for dyes.

Class 2 substances should be identified in Item 6 by proposed names which are as descriptive of the substances as possible. Names commonly used in the scientific and technical literature or in product listings should also be provided when known. Colour Index names and Enzyme Commission numbers are preferred for dyes and enzymes, respectively. Scientific (i.e., genus/species) names are preferred for bacteria, fungi, and yeasts.

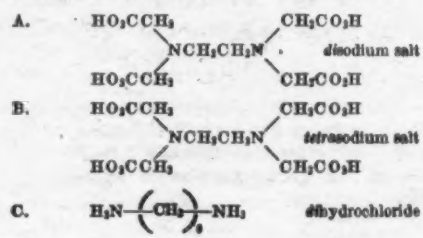
Persons completing Form B are to provide in Item 7 supplementary information that will aid in uniquely identifying chemical substances proposed for the TSCA Inventory.

For Class 1 substances, a structure diagram and a molecular formula [1] should be provided. The structure diagram should indicate clearly the identity of the atoms and the nature of the bonds joining the atoms. Commonly used, functional group abbreviation or shortcuts are acceptable (e.g., —Me, —Et, —Pr, —CO_2H, —SO_3H, —SO_2, —NH_2, —NO_2). Carbon atoms in ring systems and their attached hydrogen atoms need not be explicitly identified. Any ionic charges or stereochemistry should be shown clearly. Substances with unknown stereochemistry, but which are otherwise uniquely defined structurally, should be treated as Class 1 substances. All known sterochemical details should be provided. Indicate whether the stereochemistry shown in the diagram is relative or absolute, if known. Stereochemistry will be assumed to be relative unless otherwise specified. For example:



absolute (±), racemate (+)—form

When a substance is an addition compound, a salt, or an ester and one or both components are polybasic, please specify the ratio of the components or note that the ratio is unknown. For example:



See footnotes on p. 19303.

The molecular formula for Class 1 substances should be recorded in Item 7A.[1] This is simply an inventory or summation of the kinds and numbers of atoms present in the molecule. In the case of molecular addition compounds or salts, the molecular formula may be presented either in a single summation formula or in the dot-disconnet format used by CAS, as shown in the following examples:

A. $H_2N-(CH_2)_6-NH_2$ dihydrochloride

$C_6H_{18}Cl_2N_2$ or $C_6H_{16}N_2 \cdot 2HCl$

B. $HO_2C-(CH_2)_7-CO_2H$ disodium salt

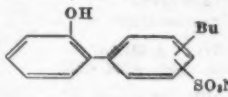
$C_9H_{14}Na_2O_4$ or $C_9H_{14}O_4 \cdot 2Na$

By definition, Class 2 substances will not have a complete chemical structure diagram to be reported in Item 7. In some cases, however, it may still be possible to provide a partial or incomplete structure diagram. For example:

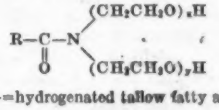
A. Hexabromobiphenyl

hexabromo derivative

B. Sodium butyl(o-hydroxyphenyl)benzenesulfonate



C. Ethoxylated hydrogenated tallow amide



R—C—=hydrogenated tallow fatty acid radical
‖
O

Since in many cases it will not be possible for persons reporting Class 2 substances to provide any type of supporting structure diagram, they should provide, to the best of their ability, a description of the method used in the final reaction sequence to produce the reported substance. This description should include the identity of the immediate precursor substance(s), the nature of the reaction, and the reactants whether or not they are implied by the reaction term. This information may be provided in the form of a reaction scheme. The precursor substance(s) should be identified with its CAS Registry Number, if known. Reaction description terms should be as specific as possible (e.g., acetylation, alkaline hydrolysis, chlorination, diazotization, epoxidation). General reaction terms should, if possible, be avoided (e.g., addition, condensation, reaction). If the substance has been extracted from a natural source or reaction mass, then the source and the nature of the extract and the extraction process should be specified. The following are examples of how supplementary information for Class 2 substances might be reported in Item 7.

A. Linseed oil $\xrightarrow[\text{hydrogenation}]{H_2\ (1333\text{-}74\text{-}0)}$ *8001-26-1

B. Castor oil acids $\xrightarrow[\text{esterification}]{\text{methanol (67-56-1)}}$ methyl ester *61789-44-4

C. Glycerol monoester of hydrogenated cottonseed oil acids $\xrightarrow[\text{acetylation}]{\text{acetic anhydride (108-24-7)}}$ acetate ester *61789-07-9

D. (Scrap) leather $\xrightarrow[\text{hydrolysis}]{NaO\ (1310\text{-}73\text{-}2)\ \text{(aqueous)}}$ protein hydrolyzates (low molecular weight polypeptides)

E. Protein hydrolyzate from leather + Tallow fatty acyl chloride (*61790-27-0) $\xrightarrow[\text{acylation}]{}$

NOTE.—Because of its greater specificity, "acylation" is preferred to "addition" or "condensation."

F. Tannins *1401-55-4 + HCHO 50-00-0 $\xrightarrow{\text{"2:1" condensation}}$ methyleneditannin

G. Graphite $\xrightarrow[\text{oxidation}]{KNO_3\ (7757\text{-}79\text{-}1)}$ graphitic oxide

Synthetic polymers proposed for the TSCA Inventory should be identified in terms of the monomers from which they have been manufactured. Chain transfer reagents used in telomerization reactions also should be identified. Monomer names should be included in the polymer name provided in Item 6.

Monomer structure diagrams should be provided in Item 7 for every Class 1 monomer. Monomers should be identified by their CAS Registery Numbers, if known. It is not necessary to specify monomer ratios or molecular weight values, or to differentiate between random, block, or graft copolymers. Polymer chemical post-treatments (e.g., esterification, etherification, partial hydrolysis, sulfonation) should be reported as specifically as possible. In the case of a post-treated polymer, the CAS Registry Number reported should be that of the polymer and not that of the monomer(s) since the polymer is the immediate precursor of the substance being reported. No molecular formula need be provided in Item 7A for polymers. The following are examples of how polymers should be reported by name in Item 6 and by structure or other supplementary detail in Item 7.

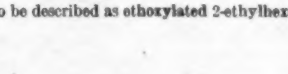
A. Butadiene-vinylidene chloride copolymer

$CH_2{=}CHCH{=}CH_2$ (106-99-0) / $CH_2{=}CCl_2$ (75-35-4) copolymer

B. Telomer of 1-hexene with carbon tetrachloride

$CH_3(CH_2)_3CH{=}CH_2$ (592-41-6) / CCl_4 (56-23-5) telomer

C. Poly(ethylene oxide) mono(2-ethylhexyl) ether



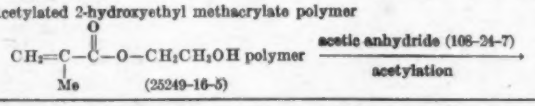
NOTE.—This substance might also be described as ethoxylated 2-ethylhexanol.

D. Sulfonated polystyrene

polystyrene (9003-53-6) $\xrightarrow[\text{sulfonation}]{SO_3\ (7446\text{-}11\text{-}9)}$

NOTE.—9003-53-6 is the CAS Registry Number for polystyrene, *not* for styrene itself.

E. Acetylated 2-hydroxyethyl methacrylate polymer



NOTE.—25249-16-5 is the CAS Registry Number for the polymer, *not* the monomer.

FOOTNOTES

[1] The term "molecular formula" is used here instead of the term "empirical formula" which is used in draft Form B published March 9, 1977 in the FEDERAL REGISTER (42 FR 13130). These terms are intended to have the same meaning. The term "molecular formula" will be used on the final form.

[2] For information regarding the overall design of the CAS Registry System, see *J. Chem. Inf. Comput. Sci.*, 1976, 16(2), 111-21.

[3] CA Index Names cited in the Candidate List are based upon either the CA Eighth Collective Index Period or CA Ninth Collective Index Period nomenclature policies. The Eighth Collective Index Period covers CA Volumes 66-75 (1967-1971), and the Ninth Collective Index Period covers CA Volumes 76-85 (1972-1976). The nomenclature policy reflected by the CA Index Name for a particular CAS Registry Number depends upon the most recent use of that Registry Number in the CAS processing system. Names based on the Ninth Collective Index Period have been selected for use in the Candidate List whenever they were available. In either case, however, the CA Index Name uniquely identifies the chemical substance associated with a particular registration.

[4] *J. Am. Chem. Soc.* 1900, 22(8), 478-94.

Code designations take the following general form:

annn-nnxy

where:

a is a single alphabetic character.
n is a numeric.
x is a numeric check character calculated from the first six characters of the code designation.
y is a numeric check character calculated from the combination of the first seven characters of the code designation and the CAS Registry Number which appears in the entry.

Code designations which appear in the Substance Name Section begin with the alphabetic characters "A" and "B," while the alphabetic characters used in code designations in the Number Section and the Formula Section are "R" and "M," respectively. Within each section, the portion of the code designation cited above as "nnn-nn" is assigned in ascending numerical sequence.

Two computer checkable characters have been included in the code designations to provide for efficient detection of transcription and keyboarding errors.

[5] These are the numerals or Greek or Roman letters used to designate the positions of unsaturated bonds or attachments of chemical groups in a molecule. More information regarding use of locants in chemical substance names may be found in the Chemical Abstracts Volume 76 Index Guide, Section IV, Paragraphs 114-120.

[7] The illustrative key entries are intended to show the section format only. They do not necessarily identify substances or substance information to be found on the Candidate List.

[8] Information regarding CA Index name selection principles and order of precedence of compounds may be found in the Chemical Abstracts Volume 76 Index Guide, Section IV, Paragraphs 105 and 106.

ATTACHMENT 1.—SAMPLE PAGE FROM THE SUBSTANCE NAME SECTION

Abbocillin-DC [*6130-64-9*] A003-1001 $C_{16}H_{18}N_2O_4S.C_{13}H_{20}N_2O_2.H_2O$
Abbocort [*50-03-3*] A003-1113 $C_{23}H_{32}O_6$
Abbolexin [*326-43-2*] A003-1228 $C_{12}H_{14}N_2O.ClH$
Abbolexin [*553-69-5*] A003-1332 $C_{12}H_{14}N_2O$
Abbot 2780 [*522-24-7*] A003-1450 $C_{16}H_{18}N_2S$
Abbott 2780 [*522-24-7*] A003-1566 $C_{16}H_{18}N_2S$
Abcid [*122-11-2*] A003-1675 $C_{12}H_{14}N_4O_4S$
Abensanil [*103-90-2*] A003-1781 $C_8H_9NO_2$
Abequose [*56816-60-5*] A003-1812 $C_6H_{12}O_4$
D-Abequose [*56816-60-5*] A003-1928 $C_6H_{12}O_4$
Abhrak [*12001-26-2*] A003-2013
$\Delta^{8,9(14)}$-Abietadienoic acid [*79-54-9*] A003-2127 $C_{20}H_{30}O_2$
7,13-Abietadien-18-oic acid [*514-10-3*] A003-2232 $C_{20}H_{30}O_2$
8,13-Abietadien-18-oic acid [*1945-53-5*] A003-2342 $C_{20}H_{30}O_2$
Abiethyl alcohol, tetrahydro-* [*13393-93-6*] A003-2465 $C_{20}H_{36}O$
Abietic acid, copper salt [*10248-55-2*] A003-2574 $C_{20}H_{30}O_2.xCu$
Abietic acid, dihydro-, triester with glycerol [*125-93-9*] A003-2686 $C_{63}H_{98}O_6$
Abietic acid [*514-10-3*] A003-2791 $C_{20}H_{30}O_2$
Abietic acid, neopentanetetrayl ester [*127-23-1*] A003-2816 $C_{85}H_{124}O_8$
Abietic acid, zinc salt [*6798-76-1*] A003-3028 $C_{20}H_{30}O_2.^1/_2Zn$
Abietic acid, dihydro-, tetraester with pentaerythritol [*127-24-2*] A003-3138 $C_{85}H_{132}O_8$
(-)-Abietic acid [*514-10-3*] A003-3241 $C_{20}H_{30}O_2$
l-Abietic acid [*514-10-3*] A003-3357 $C_{20}H_{30}O_2$
Abietic acid methyl ester [*127-25-3*] A003-3476 $C_{21}H_{32}O_2$
Abietin [*531-29-3*] A003-3587 $C_{16}H_{22}O_8$
Abietinol [*666-84-2*] A003-3690 $C_{20}H_{32}O$
Abietol [*666-84-2*] A003-3712 $C_{20}H_{32}O$
Abietoline [*10107-95-6*] A003-3822 $C_{22}H_{34}O_3$
Abietyl alcohol, dihydro- [*26266-77-3*] A003-3948 $C_{20}H_{34}O$
Abietyl alcohol [*666-84-2*] A003-4032 $C_{20}H_{32}O$
Abietyl alcohol, dehydro- [*3772-55-2*] A003-4143 $C_{20}H_{30}O$
Abietyl alcohol, tetrahydro- [*13393-93-6*] A003-4253 $C_{20}H_{36}O$
Abiguanil [*57-67-0*] A003-4364 $C_7H_{10}N_4O_2S$
Abikoviromycin [*31774-33-1*] A003-4483 $C_{10}H_{11}NO$
Abiocine [*128-46-1*] A003-4502 $C_{21}H_{41}N_7O_{12}$
Abiol [*99-76-3*] A003-4611 $C_8H_8O_3$
Abirol [*72-63-9*] A003-4728 $C_{20}H_{28}O_2$
ABL [*143-07-7*] A003-4834 $C_{12}H_{24}O_2$
A-Blastomase [*8060-16-0*] A003-4956
Abminthic [*514-73-8*] A003-5043 $C_{21}H_{23}N_3S_2.I$
Abnormal blood pigment [*9008-37-1*] A003-5156
ABOB hydrochloride [*3160-91-6*] A003-5260 $C_6H_{13}N_3O.ClH$
Abramycin [*60-54-8*] A003-5377 $C_{22}H_{24}N_2O_8$
Abrastol [*516-18-7*] A003-5496 $C_{16}H_8O_8S.^1/_2Ca$
Abricycline [*751-97-3*] A003-5518 $C_{27}H_{33}N_3O_8$
Abril wax 10DS [*110-30-5*] A003-5626 $C_{38}H_{76}N_2O_2$
Abrine [*526-31-8*] A003-5737 $C_{12}H_{14}N_2O_2$
L-Abrine [*526-31-8*] A003-5965 $C_{12}H_{14}N_2O_2$
L-Abrine acetyl deriv [*1301-02-6*] A003-6165 $C_{14}H_{16}N_2O_3$
L-Abrine hydrochloride [*5965-27-5*] A003-6275 $C_{12}H_{14}N_2O_2.ClH$
L-Abrine Nitrate [*5965-28-6*] A003-6385 $C_{12}H_{14}N_2O_2.HNO_3$
L-Abrine Picrate [*6424-13-1*] A003-6418 $C_{12}H_{14}N_2O_2.xC_6H_3N_3O_7$
Abrodan [*126-31-8*] A003-6521 $CH_3IO_3S.Na$
Abrodil [*126-31-8*] A003-6637 $CH_3IO_3S.Na$
Abromine [*107-43-7*] A003-6749 $C_5H_{11}NO_2$
Abroval [*496-67-3*] A003-6857 $C_6H_{11}BrN_2O_2$
ABS [*9003-56-9*] A003-6971 $(C_8H_8.C_4H_6.C_3H_3N)_x$
ABS 60 [*9003-56-9*] A003-7170 $(C_8H_8.C_4H_6.C_3H_3N)_x$
Abscisic acid [*21293-29-8*] A003-7285 $C_{15}H_{20}O_4$
cis-Abscisic acid [*21293-29-8*] A003-7537 $C_{15}H_{20}O_4$
(*S*)-(+)-Abscisic acid [*21293-29-8*] A003-7751 $C_{15}H_{20}O_4$
2-*cis*,4-*trans*-Abscisic acid [*21293-29-8*] A003-7867 $C_{15}H_{20}O_4$
Abscisin II [*21293-29-8*] A003-7988 $C_{15}H_{20}O_4$
cis-trans-(+)-Abscissic acid [*21293-29-8*] A003-8187 $C_{15}H_{20}O_4$
ABS copolymer [*9003-56-9*] A003-8294 $(C_8H_8.C_4H_6.C_3H_3N)_x$
Absentol [*127-48-0*] A003-8315 $C_6H_9NO_3$
Absin [*77-66-7*] A003-8423 $C_9H_{15}BrN_2O_3$
Absinthin [*1362-42-1*] A003-8546 $C_{30}H_{40}O_6$
ABS-methyl methacrylate polymer [*9010-94-0*] A003-8652 $(C_8H_8.C_5H_8O_2.C_4H_6.C_3H_3N)_x$
Abson [*9003-56-9*] A003-8760 $(C_8H_8.C_4H_6.C_3H_3N)_x$
Abson 821 [*9003-56-9*] A003-8876 $(C_8H_8.C_4H_6.C_3H_3N)_x$
Abson 69163 [*9003-56-9*] A003-8997 $(C_8H_8.C_4H_6.C_3H_3N)_x$
Abson 89110 [*9003-56-9*] A003-9080 $(C_8H_8.C_4H_6.C_3H_3N)_x$
Abson 89131 [*9003-56-9*] A003-9102 $(C_8H_8.C_4H_6.C_3H_3N)_x$
Abson 89140 [*9003-56-9*] A003-9219 $(C_8H_8.C_4H_6.C_3H_3N)_x$
Abson 89151 [*9003-56-9*] A003-9326 $(C_8H_8.C_4H_6.C_3H_3N)_x$
Abson 820X14 [*9003-56-9*] A003-9433 $(C_8H_8.C_4H_6.C_3H_3N)_x$
Absorbable gelatin sponge [**9000-70-8*] A003-9559
ABS plastic [*9003-56-9*] A003-9661 $(C_8H_8.C_4H_6.C_3H_3N)_x$
ABS resin [*9003-56-9*] A003-9777 $(C_8H_8.C_4H_6.C_3H_3N)_x$
ABSROM [*9003-56-9*] A003-9884 $(C_8H_8.C_4H_6.C_3H_3N)_x$
Abstem [*8013-88-5*] A003-9912 $C_6H_6O_7.CH_2N_2.Ca$
Abstenil [*97-77-8*] A004-0054 $C_{10}H_{20}N_2S_4$
ABS terpolymer [*9003-56-9*] A004-0168 $(C_8H_8.C_4H_6.C_3H_3N)_x$
Abstinil [*97-77-8*] A004-0277 $C_{10}H_{20}N_2S_4$
Abstinyl [*97-77-8*] A004-0384 $C_{10}H_{20}N_2S_4$
Abufene [*107-95-9*] A004-0414 $C_3H_7NO_2$
Aburamycin B [*7059-24-7*] A004-0520 $C_{37}H_{57}O_{16}$
Abyssinin [*1397-75-7*] A004-0633 $C_{32}H_{56}O_{12}$
AC 6 [*9002-88-4*] A004-0742 $(C_2H_4)_x$
AC 8 [*9002-88-4*] A004-0858 $(C_2H_4)_x$
AC 33 [*9010-88-2*] A004-1069 $(C_8H_8O_2.C_8H_8O_2)_x$
AC 394 [*9002-88-4*] A004-1178 $(C_2H_4)_x$
AC 528 [*78-34-2*] A004-1287 $C_{12}H_{26}O_6P_2S_4$
AC 601 [*4663-83-6*] A004-1397 $C_{16}H_{13}NO_3$
AC 617 [*9002-88-4*] A004-1415 $(C_2H_4)_x$
AC 680 [*9002-88-4*] A004-1536 $(C_2H_4)_x$
AC-695 [*86-35-1*] A004-1646 $C_{11}H_{12}N_2O_2$
Ac-1075 [*147-94-4*] A004-1754 $C_9H_{12}N_2O_5$
AC 1198 [*695-53-4*] A004-1861 $C_8H_7NO_3$
AC 1220 [*9002-88-4*] A004-1988 $(C_2H_4)_x$
AC 1802 [*37640-71-4*] A004-2075 $C_{22}H_{30}N_2$
AC 3901 [*5827-10-1*] A004-2185 $C_8H_{11}N_2O_4PS_2$
AC 5223 [*2439-10-3*] A004-2294 $C_{13}H_{29}N_3.C_2H_4O_2$
AC 5230 [*50-78-2*] A004-2318 $C_9H_8O_4$
AC 5727 [*64-00-6*] A004-2426 $C_{11}H_{15}NO_2$
AC 400 [*24937-78-8*] A004-2544 $(C_4H_8O_2.C_2H_4)_x$
AC 430 [*24937-78-8*] A004-2651 $(C_4H_8O_2.C_2H_4)_x$
AC 17 [*51460-26-5*] A004-2761 $C_{10}H_{12}N_4O_5S.Na$
AC 12008 [*78-52-4*] A004-2871 $C_8H_{19}O_2PS_3$
AC 12402 [*2550-75-6*] A004-2996 $C_9H_6Cl_8$
AC 18133 [*297-97-2*] A004-3085 $C_8H_{12}N_2O_3PS$
AC-18737 [*2778-04-3*] A004-3102 $C_9H_{13}O_6PS$
AC 24055 [*1933-50-2*] A004-3216 $C_{10}H_{14}N_4O$
AC 43064 [*333-29-9*] A004-3326 $C_7H_{14}NO_2PS_3$
AC 47031 [*947-02-4*] A004-3438 $C_7H_{14}NO_3PS_2$
AC 47470 [*950-10-7*] A004-3553 $C_8H_{16}NO_3PS_2$
AC 52160 [*3383-96-8*] A004-3662 $C_{16}H_{20}O_6P_2S_3$
AC 92100 [*13071-79-9*] A004-3777 $C_9H_{21}O_2PS_3$
7-ACA [*957-68-6*] A004-3885 $C_{10}H_{12}N_2O_5S$
Acabel [*5205-82-3*] A004-3916 $C_{22}H_{28}NO_3.CH_3O_4S$
Acacetin [*480-44-4*] A004-4091 $C_{16}H_{12}O_5$
Acacetin diacetate [*5892-39-7*] A004-4114 $C_{20}H_{16}O_7$
Acacetin-*β*-rutinoside, monohydrate [*480-36-4*] A004-4226 $C_{28}H_{32}O_{14}$
Acacetin 7-*O*-rutinoside [*480-36-4*] A004-4333 $C_{28}H_{32}O_{14}$
Acacia [**9000-01-5*] A004-4445
Acacia dealbata gum [**9000-01-5*] A004-4567
Acacia gum [**9000-01-5*] A004-4674
Acacia senegal [**9000-01-5*] A004-4781
Acacia syrup [**9000-01-5*] A004-4897
Acacic acid [*1962-14-7*] A004-4917 $C_{30}H_{48}O_5$
Acaciin [*480-36-4*] A004-5011 $C_{28}H_{32}O_{14}$
Acaciol [*14735-72-9*] A004-5127 $C_{16}H_{15}NO_3$
N'-AcADAB [*1591-56-6*] A004-5231 $C_{16}H_{18}N_4O$
Acadyl [*66-76-2*] A004-5348 $C_{19}H_{12}O_6$
Acalin Red S 2B [*6472-50-0*] A004-5454 $C_{34}H_{26}N_4O_8S_2.2Na$
Acalmid [*79-93-6*] A004-5578 $C_{11}H_{15}ClO_2$
Acalo [*79-93-6*] A004-5685 $C_{11}H_{15}ClO_2$
Acamol [*103-90-2*] A004-5798 $C_8H_9NO_2$
Acamylophenine [*54-30-8*] A004-5815 $C_{19}H_{32}N_2O_2$
Acamylophenine dihydrochloride [*5892-41-1*] A004-5927 $C_{19}H_{32}N_2O_2.2ClH$
Acaprin [*135-14-8*] A004-6018 $C_{21}H_{20}N_4O.2CH_3O_4S$
Acapron [*135-14-8*] A004-6131 $C_{21}H_{20}N_4O.2CH_3O_4S$
Acaraben [*510-15-6*] A004-6246 $C_{16}H_{14}Cl_2O_3$
Acaralate [*5836-10-2*] A004-6354 $C_{17}H_{16}Cl_2O_3$
Acaricydol E 20 [*80-33-1*] A004-6467 $C_{12}H_9Cl_2O_3S$
Acarin [*115-32-2*] A004-6581 $C_{14}H_9Cl_5O$
Acarithion [*786-19-6*] A004-6609 $C_{11}H_{16}ClO_2PS_3$
Acavyl [*66-76-2*] A004-6714 $C_{19}H_{12}O_6$
ACB [*13988-20-0*] A004-6829 $C_9H_7ClN_2O_2$
ACC 18133 [*297-97-2*] A004-6938 $C_8H_{13}N_2O_2PS$
Accelerate [*129-67-9*] A004-7029 $C_8H_{10}O_5.2Na$
Accelerator CZ [*95-33-0*] A004-7148 $C_{13}H_{16}N_2S_2$
Accelerator D [*102-06-7*] A004-7258 $C_{13}H_{13}N_3$
Accelerator EFK [*14634-93-6*] A004-7368 $C_{18}H_{20}N_2S_4Zn$
Accelerator factor [*9001-24-5*] A004-7479
Accelerator globulin [*9001-24-5*] A004-7592
Accelerator HX [*5459-93-8*] A004-7619 $C_8H_{17}N$
Accelerator L [*137-30-4*] A004-7729 $C_8H_{12}N_2S_4Zn$
Accelerator M [*149-30-4*] A004-7831 $C_7H_5NS_2$
Accelerator T [*137-26-8*] A004-7948 $C_8H_{12}N_2S_4$
Accelerator Thiuram [*137-26-8*] A004-8031 $C_8H_{12}N_2S_4$
Accelerine [*138-89-6*] A004-8155 $C_8H_{10}N_2O$
Accenon [*96-35-1*] A004-8263 $C_{11}H_{12}N_2O_2$
Accent [*142-47-2*] A004-8373 $C_5H_8NO_4.Na$
Acco Fast Bordeaux GP salt [*96-96-8*] A004-8483 $C_7H_8N_2O_5$
Acco Fast Red KB base [*95-79-4*] A004-8512 C_7H_6ClN
Acco Naf-Sol AS-D [*135-61-5*] A004-8627 $C_{18}H_{18}NO_2$
Acco Naf-Sol AS-KB [*135-63-7*] A004-8738 $C_{18}H_{16}ClNO_2$
Acco Naf-Sol AS-SW [*135-64-8*] A004-8847 $C_{21}H_{18}NO_2$
Acco Naf-Sol *AS*-ITR [*92-72-8*] A004-8957 $C_{19}H_{16}ClNO_4$

ATTACHMENT 2.—SAMPLE PAGE FROM THE FORMULA SECTION

CW
Tungsten carbide, WC [12070-12-1] M008-3337
CZr
Zirconium carbide, ZrC [12070-14-3] M008-3440
C_2AgN_2
Argentate(1-), bis(cyano-C)-,
potassium [506-61-6] M008-3558
sodium [21430-69-3] M008-3671
C_2AuKN_2
Gold potassium cyanide, $AuK(CN)_2$ [554-07-4] M008-3782
C_2AuN_2
Aurate(1-), bis(cyano-C)-,
potassium [13967-50-5] M008-3894
sodium [15280-09-8] M008-3911
C_2BaN_2
Barium cyanide [542-62-1] M008-4093
C_2BrF_3
Ethene, bromotrifluoro- [598-73-2] M008-4111
$C_2Br_2F_4$
Ethane, 1,2-dibromo-1,1,2,2-tetrafluoro- [124-73-2] M008-4236
C_2Br_4
Ethene, tetrabromo- [79-28-7] M008-4341
C_2Ca
Calcium carbide, CaC_2 [75-20-7] M008-4455
C_2CaN_2
Calcium cyanide [592-01-8] M008-4563
$C_2CaO_{12}Si_2$
Tilleyite [12261-87-9] M008-4689
C_2CdN_2
Cadmium cyanide [542-83-6] M008-4703
C_2ClF_3
Ethene, chlorotrifluoro- [79-38-9] M008-4814
homopolymer [9002-83-9] M008-4923
polymer with ethene [25101-45-5] M008-5015
C_2ClF_3O
Acetyl chloride, trifluoro- [354-32-5] M008-5123
C_2ClF_5
Ethane, chloropentafluoro- [76-15-3] M008-5247
C_2Cl_2
Ethyne, dichloro- [7572-29-4] M008-5351
$C_2Cl_2F_2$
Ethene, 1,1-dichloro-2,2-difluoro- [79-35-6] M008-5467
$C_2Cl_2F_4$
Ethane, 1,1-dichloro-1,2,2,2-tetrafluoro- [374-07-2] M008-5571
——, 1,2-dichloro-1,1,2,2-tetrafluoro- [76-14-2] M008-5696
——, dichlorotetrafluoro- [1320-37-2] M008-5711
$C_2Cl_2O_2$
Ethanedioyl dichloride [79-37-8] M008-5821
$C_2Cl_3F_3$
Ethane, trichlorotrifluoro- [26523-64-8] M008-5935
——, 1,1,1-trichloro-2,2,2-trifluoro- [354-58-5] M008-6024
——, 1,1,2-trichloro-1,2,2-trifluoro- [76-13-1] M008-6138
C_2Cl_3N
Acetonitrile, trichloro- [545-06-2] M008-6251
C_2Cl_4
Ethene, tetrachloro- [127-18-4] M008-6368
$C_2Cl_4F_2$
Ethane, tetrachlorodifluoro- [28605-74-5] M008-6477
——, 1,1,1,2-tetrachloro-2,2-difluoro- [76-11-9] M008-6580
——, 1,1,2,2-tetrachloro-1,2-difluoro- [76-12-0] M008-6616
C_2Cl_4O
Acetyl chloride, trichloro- [76-02-8] M008-6727
C_2Cl_5F
Ethane, pentachlorofluoro- [354-56-3] M008-6839
C_2Cl_6
Ethane, hexachloro- [67-72-1] M008-6943
$C_2Cl_6O_2S$
Methane, sulfonylbis[trichloro- [3064-70-8] M008-7035
C_2CoN_2
Cobalt cyanide, $Co(CN)_2$ [542-84-7] M008-7144
C_2CuN_2
Cuprate(1-), bis(cyano-C)-,
potassium [13682-73-0] M008-7264
——, dicyano-,
sodium [21445-44-3] M008-7375
C_2F_4
Ethene, tetrafluoro- [116-14-3] M008-7487
homopolymer [9002-84-0] M008-7599
C_2F_6
Ethane, hexafluoro- [76-16-4] M008-7610
$C_2HBrClF_3$
Ethane, 2-bromo-2-chloro-1,1,1-trifluoro- [151-67-7] M008-7733
C_2HBrF_4
Ethane, 2-bromo-1,1,1,2-tetrafluoro- [124-72-1] M008-7841
C_2HBr_3O
Acetaldehyde, tribromo- [115-17-3] M008-7953
$C_2HBr_3O_2$
Acetic acid, tribromo- [75-96-7] M008-8048
C_2HBr_5
Ethane, pentabromo- [75-95-6] M008-8153
$C_2HClF_2O_2$
Acetic acid, chlorodifluoro- [76-04-0] M008-8271
$C_2HCl_2F_3$
Ethane, 2,2-dichloro-1,1,1-trifluoro- [306-83-2] M008-8386
C_2HCl_3
Ethene, trichloro- [79-01-6] M008-8498
C_2HCl_3O
Acetaldehyde, trichloro- [75-87-6] M008-8517
Acetyl chloride, dichloro- [79-36-7] M008-8624
$C_2HCl_3O_2$
Acetic acid, trichloro-,
compd. with N'-(4-chlorophenyl)-N,N-dimethylurea (1:1) [140-41-0] M008-8742
compd. with N,N-dimethyl-N'-phenylurea (1:1) [4482-55-7] M008-8858 [76-03-9] M008-8969
sodium salt [650-51-1] M008-9050
C_2HCl_5
Ethane, pentachloro- [76-01-7] M008-9163
C_2HF_3
Ethene, trifluoro-,
homopolymer [24980-67-4] M008-9285
C_2HF_3O
Acetaldehyde, trifluoro- [75-90-1] M008-9304
$C_2HF_3O_2$
Acetic acid, trifluoro- [76-05-1] M008-9411
lithium salt [2923-17-3] M008-9521
thallium(3+) salt [23586-53-0] M008-9636
C_2HN_3
Cyanamide, cyano- [504-66-5] M008-9751
C_2HNa
Sodium acetylide, $Na(C_2H)$ [1066-26-8] M008-9863
C_2H_2
Ethenylidene [2143-69-3] M008-9978
Ethyne [74-86-2] M009-0023
$C_2H_2AsCl_3$
Arsonous dichloride, (2-chloroethenyl)- [541-25-3] M009-0136
$C_2H_2AuO_2S$
Aurate(1-), [mercaptoacetato(2-)]-,
calcium [16925-54-5] M009-0253
$C_2H_2Br_2$
Ethene, dibromo- [25429-23-6] M009-0360
——, 1,2-dibromo- [540-49-8] M009-0472
$C_2H_2Br_2Cl_2$
Ethane, 1,2-dibromo-1,1-dichloro- [75-81-0] M009-0586
$C_2H_2Br_2F_2$
Ethane, 1,2-dibromo-1,1-difluoro- [75-82-1] M009-0617
$C_2H_2Br_2O$
Acetyl bromide, bromo- [598-21-0] M009-0724
$C_2H_2Br_2O_2$
Acetic acid, dibromo- [631-64-1] M009-0839
$C_2H_2Br_4$
Ethane, tetrabromo- [25167-20-8] M009-0947
——, 1,1,2,2-tetrabromo- [79-27-6] M009-1035
$C_2H_2ClF_3$
Ethane, chlorotrifluoro- [1330-45-6] M009-1145
——, 2-chloro-1,1,1-trifluoro- [75-88-7] M009-1262
C_2H_2ClN
Acetonitrile, chloro- [107-14-2] M009-1373
$C_2H_2Cl_2$
Ethene, dichloro- [25323-30-2] M009-1487
——, 1,1-dichloro- [75-35-4] M009-1592
homopolymer [9002-85-1] M009-1612
——, 1,2-dichloro- [540-59-0] M009-1737
(Z)- [156-59-2] M009-1842
$C_2H_2Cl_2O$
Acetaldehyde, dichloro- [79-02-7] M009-1955
Acetyl chloride, chloro- [79-04-9] M009-2041
$C_2H_2Cl_2O_2$
Acetic acid, dichloro-,
compd. with N-(1-methylethyl)-2-propanamine (1:1) [660-27-5] M009-2155
compd. with sulfinylbis[methane] (1:1) [7304-86-1] M009-2272 [79-43-6] M009-2387
$C_2H_2Cl_3N$
Ethylidenimine, 2,2,2-trichloro- [507-39-1] M009-2496
$C_2H_2Cl_3NO$
Acetamide, 2,2,2-trichloro- [594-65-0] M009-2510
$C_2H_2Cl_4$
Ethane, tetrachloro- [25322-20-7] M009-2623
——, 1,1,2,2-tetrachloro- [79-34-5] M009-2748
$C_2H_2CuO_2$
Copper, [1,2-ethenediolato(2-)-O,O']- [288-55-1] M009-2858
$C_2H_2Cu_2O_5$
Azurite [1319-45-5] M009-2966
$C_2H_2F_2$
Ethene, 1,1-difluoro- [75-38-7] M009-3057
homopolymer [24937-79-9] M009-3163

ATTACHMENT 3.—SAMPLE PAGE FROM THE NUMBER SECTION

56-33-7 R002-6237
Disiloxane, 1,1,3,3-tetramethyl-1,3-diphenyl- $C_{16}H_{22}OSi_2$
56-34-8 R002-6346
Ethanaminium, *N,N,N*-triethyl-, chloride $C_8H_{20}N.Cl$
56-35-9 R002-6455
Distannoxane, hexabutyl- $C_{24}H_{54}OSn_2$
56-38-2 R002-6571
Phosphorothioic acid, *O,O*-diethyl *O*-(4-nitrophenyl) ester $C_{10}H_{14}NO_5PS$
56-40-6 R002-6681
Glycine $C_2H_5NO_2$
56-41-7 R002-6791
L-Alanine $C_3H_7NO_2$
56-45-1 R002-6810
L-Serine $C_3H_7NO_3$
56-47-3 R002-6921
Pregn-4-ene-3,20-dione, 21-(acetyloxy)- $C_{23}H_{32}O_4$
56-49-5 R002-7017
Benz[*j*]aceanthrylene, 1,2-dihydro-3-methyl- $C_{21}H_{16}$
56-53-1 R002-7134
Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-, (*E*)- $C_{18}H_{20}O_2$
56-54-2 R002-7243
Cinchonan-9-ol, 6'-methoxy-, (9*S*)- $C_{20}H_{24}N_2O_2$
56-55-3 R002-7352
Benz[*a*]anthracene $C_{18}H_{12}$
56-57-5 R002-7464
Quinoline, 4-nitro-, 1-oxide $C_9H_6N_2O_3$
56-59-7 R002-7581
Vasopressin, 2-L-phenylalanine-8-L-lysine- $C_{46}H_{65}N_{13}O_{11}S_2$
56-65-5 R002-7603
Adenosine 5'-(tetrahydrogen triphosphate) $C_{10}H_{16}N_5O_{13}P_3$
56-69-9 R002-7719
Tryptophan, 5-hydroxy- $C_{11}H_{12}N_2O_3$
56-72-4 R002-7828
Phosphorothioic acid, *O*-(3-chloro-4-methyl-2-oxo-2*H*-1-benzopyran-7-yl) *O,O*-diethyl ester $C_{14}H_{16}ClO_5PS$
56-73-5 R002-7937
D-Glucose, 6-(dihydrogen phosphate) $C_6H_{13}O_9P$
56-75-7 R002-8024
Acetamide, 2,2-dichloro-*N*-[2-hydroxy-1-(hydroxymethyl)-2-(4-nitrophenyl)ethyl]-, [*R*-(*R**,*R**)]- $C_{11}H_{12}Cl_2N_2O_5$
56-81-5 R002-8145
1,2,3-Propanetriol $C_3H_8O_3$
56-82-6 R002-8254
Propanal, 2,3-dihydroxy-, (±)- $C_3H_6O_3$
56-83-7 R002-8363
D-Fructofuranose, 6-(dihydrogen phosphate) $C_6H_{13}O_9P$
56-84-8 R002-8472
L-Aspartic acid $C_4H_7NO_4$
56-85-9 R002-8596
L-Glutamine $C_5H_{10}N_2O_3$
56-86-0 R002-8618
L-Glutamic acid $C_5H_9NO_4$
56-87-1 R002-8727
L-Lysine $C_6H_{14}N_2O_2$
56-88-2 R002-8836
L-Homocysteine, *S*-(2-amino-2-carboxyethyl)-, (*R*)- $C_7H_{14}N_2O_4S$
56-89-3 R002-8946
L-Cystine $C_6H_{12}N_2O_4S_2$
56-91-7 R002-9031
Benzoic acid, 4-(aminomethyl)- $C_8H_9NO_2$
56-92-8 R002-9155
1*H*-Imidazole-4-ethanamine, dihydrochloride $C_5H_9N_3.2ClH$
56-93-9 R002-9264
Benzenemethanaminium, *N,N,N*-trimethyl-, chloride $C_{10}H_{16}N.Cl$
56-94-0 R002-9379
Benzenaminium, 3,3'-[1,10-decanediylbis[(methylimino)carbonyloxy]]bis[*N,N,N*-trimethyl-, dibromide $C_{32}H_{52}N_4O_4.2Br$
56-95-1 R002-9488
2,4,11,13-Tetraazatetradecanediimidamide, *N,N'*-bis(4-chlorophenyl)-3,12-diimino-, diacetate $C_{22}H_{30}Cl_2N_{10}.2C_2H_4O_2$
56-97-3 R002-9512
Pyridinium, 1,1'-(1,3-propanediyl)bis[4-[(hydroxyimino)methyl]-, dibromide $C_{19}H_{18}N_4O_2.2Br$
57-00-1 R002-9623
Glycine, *N*-(aminoiminomethyl)-*N*-methyl- $C_4H_9N_3O_2$
57-03-4 R002-9737
1,2,3-Propanetriol, 1-(dihydrogen phosphate) $C_3H_9O_6P$
57-06-7 R002-9841
1-Propene, 3-isothiocyanato- C_4H_5NS
57-08-9 R002-9953
Hexanoic acid, 6-(acetylamino)- $C_8H_{15}NO_3$
57-09-0 R003-0012
1-Hexadecanaminium, *N,N,N*-trimethyl-, bromide $C_{19}H_{42}N.Br$
57-10-3 R003-0120
Hexadecanoic acid $C_{16}H_{32}O_2$
57-11-4 R003-0238
Octadecanoic acid $C_{18}H_{36}O_2$
57-12-5 R003-0347
Cyanide CN
57-13-6 R003-0457
Urea CH_4N_2O
57-14-7 R003-0571
Hydrazine, 1,1-dimethyl- $C_2H_8N_2$
57-15-8 R003-0681
2-Propanol, 1,1,1-trichloro-2-methyl- $C_4H_7Cl_3O$
57-22-7 R003-0798
Vincaleukoblastine, 22-oxo- $C_{46}H_{58}N_4O_{10}$
57-24-9 R003-0816
Strychnidin-10-one $C_{21}H_{22}N_2O_2$
57-27-2 R003-0927
Morphinan-3,6-diol, 7,8-didehydro-4,5-epoxy-17-methyl-, (5*α*,6*α*)- $C_{17}H_{19}NO_3$
57-30-7 R003-1014
2,4,6(1*H*,3*H*,5*H*)-Pyrimidinetrione, 5-ethyl-5-phenyl-, monosodium salt $C_{12}H_{12}N_2O_3.Na$
57-33-0 R003-1139
2,4,6(1*H*,3*H*,5*H*)-Pyrimidinetrione, 5-ethyl-5-(1-methylbutyl)-, monosodium salt $C_{11}H_{18}N_2O_3.Na$
57-37-4 R003-1246
Benzeneacetic acid, *α*-hydroxy-*α*-phenyl-, 2-(diethylamino)ethyl ester, hydrochloride $C_{20}H_{25}NO_3.ClH$
57-39-6 R003-1358
Aziridine, 1,1',1''-phosphinylidynetris[2-methyl- $C_9H_{18}N_3OP$
57-40-9 R003-1465
Aziridine, 1,1'-(phenylphosphinylidene)bis[2-methyl- $C_{12}H_{17}N_2OP$
57-41-0 R003-1586
2,4-Imidazolidinedione, 5,5-diphenyl- $C_{15}H_{12}N_2O_2$
57-42-1 R003-1602
4-Piperidinecarboxylic acid, 1-methyl-4-phenyl-, ethyl ester $C_{15}H_{21}NO_2$
57-43-2 R003-1711
2,4,6(1*H*,3*H*,5*H*)-Pyrimidinetrione, 5-ethyl-5-(3-methylbutyl)- $C_{11}H_{18}N_2O_3$
57-44-3 R003-1829
2,4,6(1*H*,3*H*,5*H*)-Pyrimidinetrione, 5,5-diethyl- $C_8H_{12}N_2O_3$
57-47-6 R003-1934
Pyrrolo[2,3-*b*]indol-5-ol, 1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethyl-, methylcarbamate (ester), (3a*S*-*cis*)- $C_{15}H_{21}N_3O_2$
57-48-7 R003-2028
D-Fructose $C_6H_{12}O_6$
57-50-1 R003-2140
α-D-Glucopyranoside, *β*-D-fructofuranosyl $C_{12}H_{22}O_{11}$
57-53-4 R003-2253
1,3-Propanediol, 2-methyl-2-propyl-, dicarbamate $C_9H_{18}N_2O_4$
57-55-6 R003-2365
1,2-Propanediol $C_3H_8O_2$
57-56-7 R003-2474
Hydrazinecarboxamide CH_5N_3O
57-57-8 R003-2598
2-Oxetanone $C_3H_4O_2$
57-62-5 R003-2618
2-Naphthacenecarboxamide, 7-chloro-4-(dimethylamino)-1,4,4a,5,5a,6,11,12a-octahydro-3,6,10,12,12a-pentahydroxy-6-methyl-1,11-dioxo-, [4*S*-(4*α*,4a*α*,5a*α*,6*β*,12a*α*)]- $C_{22}H_{23}ClN_2O_8$
57-63-6 R003-2727
19-Norpregna-1,3,5(10)-trien-20-yne-3,17-diol, (17*α*)- $C_{20}H_{24}O_2$
57-64-7 R003-2836
Benzoic acid, 2-hydroxy-, compd. with (3a*S*-*cis*)-1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethylpyrrolo[2,3-*b*]indol-5-yl methylcarbamate (1:1) $C_{15}H_{21}N_3O_2.C_7H_6O_3$
57-65-8 R003-2946
Benzeneacetic acid, 3,5-diiodo-4-(3-iodo-4-methoxyphenoxy)-, 2-(diethylamino)ethyl ester, hydrochloride $C_{21}H_{24}I_3NO_4.ClH$
57-66-9 R003-3039
Benzoic acid, 4-[(dipropylamino)sulfonyl]- $C_{13}H_{19}NO_4S$
57-67-0 R003-3151
Benzenesulfonamide, 4-amino-*N*-(aminoiminomethyl)- $C_7H_{10}N_4O_2S$
57-68-1 R003-3269
Benzenesulfonamide, 4-amino-*N*-(4,6-dimethyl-2-pyrimidinyl)- $C_{12}H_{14}N_4O_2S$
57-71-6 R003-3372
2,3-Butanedione, monooxime $C_4H_7NO_2$
57-74-9 R003-3486
4,7-Methano-1*H*-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro- $C_{10}H_6Cl_8$
57-83-0 R003-3517
Pregn-4-ene-3,20-dione $C_{21}H_{30}O_2$
57-85-2 R003-3628
Androst-4-en-3-one, 17-(1-oxopropoxy)-, (17*β*)- $C_{22}H_{32}O_3$
57-86-3 R003-3738
Pregna-1,4-diene-3,20-dione, 11,21-dihydroxy-16-methyl-, (11*β*,16*α*)- $C_{22}H_{28}O_4$
57-87-4 R003-3847
Ergosta-5,7,22-trien-3-ol, (3*β*,22*E*)- $C_{28}H_{44}O$
57-88-5 R003-3956
Cholest-5-en-3-ol (3*β*)- $C_{27}H_{46}O$
57-91-0 R003-4041
Estra-1,3,5(10)-triene-3,17-diol, (17*α*)- $C_{18}H_{24}O_2$

ATTACHMENT 4.—SAMPLE PAGE FROM THE UVCB SECTION

Palm kernel acids, sodium salt [*61789-89-7]
Palm oil acids, sodium salt [*61790-79-2]
Peanut oil acids, potassium salt [*61789-56-8]
Peanut oil acids, sodium salt [*61789-57-9]
Resin acid, potassium salt [*61790-50-9]
Resin acid, sodium salt [*61790-51-0]
Soybean oil acids, potassium salt [*61790-24-7]
Soybean oil acids, sodium salt [*61790-25-8]
Tall oil acids, potassium salt [*61790-44-1]
Tall oil acids, sodium salt [*61790-45-2]
Tall oil soaps, limed and sulfurized [*61790-02-1]
Tallow acids, potassium salt [*61790-32-7]
Tallow acids, sodium salt [*8052-48-0]

Soybean oil
Benzyldimethyl(soybean oil alkyl)ammonium chloride [*61789-74-0]
Dimethylbis(soybean oil alkyl)ammonium chloride [*61788-92-9]
N,N-Dimethyl(soybean oil alkyl)amine [*61788-91-8]
Epoxidized soya oils [*61788-96-3]
Ethyldimethyl(soybean oil alkyl)ammonium bromide [*61788-99-6]
N-Ethyl-*N*-(soybean oil alkyl)morpholinium ethyl sulfate [*61791-34-2]
Glycerol monoester of hydrogenated soybean oil acids [*61789-08-0]
Polyethylene glycol monoester of soybean oil acids [*61791-07-9]
Soybean oil acids, potassium salt [*61790-24-7]
Soybean oil acids, sodium salt [*61790-25-8]
(Soybean oil alkyl)amine [*61790-18-9]
(Soybean oil alkyl)amine, acetate [*61790-58-7]
(Soybean oil alkyl)amine, ethoxylated [*61791-24-0]
N-(Soybean oil alkyl)morpholine [*61791-40-0]
N-(Soybean oil alkyl)trimethylenediamine [*61791-67-1]
Soybean oil, ethoxylated [*61791-23-9]
Soybean oil, sulfated, sodium salt [*61790-16-7]
Trimethyl(soybean oil alkyl)ammonium chloride [*61790-41-8]

Spermaceti
Spermaceti [*8002-23-1]

Sperm oil
Chlorosulfurized sperm oil [*61789-46-6]
Sperm oil [*8002-24-2]
Sperm oil alcohol, ethoxylated [*61791-21-7]
Sperm oil alcohol, ethoxylated and sulfated, sodium salt [*61791-22-8]
Sperm oil, sulfated, sodium salt [*8016-76-0]
Sulfurized sperm oil [*61790-05-4]

Sulfates
Coconut oil acids-ethanolamine salt, sulfated, potassium salt [*61790-80-5]
Coconut oil acids-ethanolamine salt, sulfated, sodium salt [*61790-75-8]
Coconut oil acids-isopropanolamine condensate, sulfate, sodium salt [*61790-76-9]
Coconut oil, sulfated, sodium salt [*61789-20-6]
Cod oil, sulfated, sodium salt [*61789-21-7]
Cottonseed oil, sulfated, sodium salt [*61789-27-3]
N-Ethyl-*N*-(soybean oil alkyl)morpholinium ethyl sulfate [*61791-34-2]
Glycerol monoester of coconut oil acids, sulfated, ammonium salt [*61789-03-5]
Glycerol monoester of coconut oil acids, sulfated, sodium salt [*61789-04-6]
Herring oil, sulfated, ammonium salt [*61788-82-7]
Herring oil, sulfated, sodium salt [*61788-83-8]
Lard, sulfated, sodium salt [*61788-51-0]
Mixed fish oils, sulfated, sodium salt [*61788-64-5]
Mixed vegetable oil acids, sulfated, sodium salt [*61788-67-8]
Mixed vegetable oils, sulfated [*61790-19-0]
Mustard seed oil, sulfated, sodium salt [*61788-68-9]
Neat's-foot oil acids-ethanolamine condensate, sulfated, ammonium salt [*61790-74-7]
Neat's-foot oil, sulfated, sodium salt [*61788-70-3]
Peanut oil, sulfated, sodium salt [*61789-58-0]
Redfish oil, sulfated, sodium salt [*61790-21-4]
Ricebean oil, sulfated, sodium salt [*61790-22-5]
Soybean oil, sulfated, sodium salt [*61790-16-7]
Sperm oil alcohol, ethoxylated and sulfated, sodium salt [*61791-22-8]
Sperm oil, sulfated, sodium salt [*8016-76-0]
Tall oil acids-polyalkylenepolyamine condensate, sulfuric acid salt [*61790-77-0]
Tall oil, sulfated, sodium salt [*61790-36-0]
(Tallow alkyl)amine, sulfated, ethoxylated [*61791-27-3]
Tallow, sulfated, sodium salt [*61790-30-5]
Whale oil, sulfated, sodium salt [*61790-08-7]
Wool grease, sulfated, sodium salt [*61790-09-8]

Sulfides
Phenol, sulfurated [*61788-41-8]
Phosphosulfurized polybutene [*61788-35-0]
Sulfurized lard oil [*61790-49-6]
Sulfurized methyl oleate, copper-treated [*61788-34-9]
Tall oil soaps, limed and sulfurized [*61790-02-1]
Tall oil sulfurized [*61790-36-1]

Sulfonic acids
Herring oil, sulfonated [*61788-84-9]
N-(2-Hydroxyethyl)-*N*-(tallow alkyl)sulfosuccinamic acid, disodium salt [*61791-35-3]
N-Methyl-*N*-(tall oil acyl)taurine, sodium salt [*61791-41-1]
N-Methyl-*N*-(tallow acyl)taurine, sodium salt [*61791-43-3]
Oil-soluble petroleum sulfonate, barium salt [*61790-48-5]
Oil-soluble petroleum sulfonate, calcium salt [*61789-86-4]
Oil-soluble petroleum sulfonate, magnesium salt [*61789-87-5]
Oil-soluble petroleum sulfonates [*61789-85-3]
Petroleumsulfonic acid, water-soluble, sodium salt [*61789-62-6]
Sulfosuccinic acid, bis(tallow monoglyceride) ester, sodium salt [*61791-65-9]
Sulfosuccinic acid, 2-(coconut oil amido)ethyl ester, disodium salt [*61791-66-0]

Tall oil
Anhydrosorbitol monoester of tall oil acids [*61791-48-8]
Anhydrosorbitol sesquiester of tall oil acids [*61791-49-9]
Anhydrosorbitol tetraester of tall oil acids [*61791-50-2]
Anhydrosorbitol triester of tall oil acids [*61791-51-3]
1-Benzyl-1-(2-hydroxyethyl)-2-nor(tall oil alkyl)-2-imidazole [*61791-37-5]
Butyl epoxytallate [*61789-33-1]
Calcium-manganese tallate [*61789-35-3]
Cobalt tallate [*61789-52-4]

SECTION 2—CONCERNING APPENDIX A OF THE CANDIDATE LIST

Section 710.5(a)(5) of the proposed regulation provided that any mineral specifically designated in Appendix A of the Candidate List would be exempt from the reporting requirements for compilation of the inventory and would be automatically included on the inventory of chemical substances. Any mineral not included in Appendix A, however, would be subject to the general reporting requirements.

The following list entitled "Minerals Currently Under Consideration for Inclusion in Appendix A of the Candidate List" was prepared for EPA by the Department of Interior's Bureau of Mines. The Bureau included all known minerals and rock products which have been produced or processed for the commercial market within the past three years. Minerals mined and consumed wholly in foreign countries were excluded. In reviewing the minerals on this list, EPA intends to apply the following criteria in selecting minerals to be included in Appendix A of the Candiate List:

(1) The mineral has been manufactured or processed for a commercial purpose in the United States during the period beginning July 1, 1974.

(2) The mineral is obtained from a mine, well, or by collection from the land or waters and is unprocessed, dried, or processed only by mechanical or gravitational means such as crushing, grinding, floating, settling, or sieving.

(3) The mineral is not now recognized to be of immediate toxicological concern to warrant EPA identifying at this time each of its manufacturers.

(4) The mineral is described by a name which identifies it as specifically and narrowly as possible.

EPA now recognizes that some of the minerals on this list do not meet these criteria for a variety of reasons. For example, some entries such as flyash and charcoal do not meet the second criteria with respect to processing. With respect to the third criteria concerning toxicological effects, several minerals such as asbestos, uranium ore, and mercury ore may be considered inappropriate for Appendix A. Finally, several materials on the list are identified in broad classes. EPA is concerned that such broad classes may include minerals which on the basis of toxicological criteria would otherwise be excluded from Appendix A. Such classes as "feldspar group minerals" and "quartz group minerals" will need to be examined in this regard.

In citing these examples, EPA seeks only to illustrate the considerations which will be taken into account in assembling Appendix A. EPA solicits examination by the public of each entry on the Minerals Under Consideration List with regard to its suitability for inclusion in Appendix A of the Candidate List. EPA also solicits other proposed additions or exclusions. Any request to include a mineral in Appendix A must clearly show that the mineral satisfies the criteria stated above for placing that mineral in Appendix A of the Candidate List. Any request to exclude a mineral for Appendix A must show that the mineral does not satisfy the above stated criteria.

MINERALS CURRENTLY UNDER CONSIDERATION FOR INCLUSION IN APPENDIX A OF THE CANDIDATE LIST

acmite
actinolite
aeschynite
aikinite
alaskite
albite
allanite
alum
alumina
aluminum ore
aluminum phosphates
aluminum silicates
aluminum sulfates
ambatoarinite
amber
amblygonite
amethyst
ampangabeite
amphibole group minerals
amphibolite
analcime
anatase
ancylite
andalusite
andesite
angelsite
anhydrite
ankerite
anorthite
anorthoclase
anthophyllite
anthracite
antigorite
antimonite
antlerite
apatite
aplite
apophyllite
aquamarine
aragonite
arfvedsonite
argentite
argillite
arkose
arsenopalladinite
arsenopyrite
asbestos
atacamite
attapulgite
auerlite
augite
autunite
azarite
azurite

babingtonite
baddeleyite
bakerite
ball clay
barite
basalt
bassanite
bassetite
bastnaesite
bauxite
bazzite
beckelite
bacquerelite
bentonite
bertrandite
beryl
betafite
bentonitic clay
bikitaite
biotite
bismite
bismuthinite
bismutite
blomstrandine-priorite
boehmite
boracite
borax
bornite
braggite
brannerite
brewsterite
brine
britholite
brochantite
brucite
burkeite
buszite

calcite
calcium-arsenite
calcium silicates
caliche
cancrinite
cappelenite
carnotite
caryocerite
cassiterite
cenosite
celsian
cerargyrite
cerite
cerussite
chabizite
chalcedony
chalcocite
chalcolamprite
chalcophanite
chalcopyrite
chalk
charcoal
cheralite
chert
china clay
chlorite
chrome ore
chromite
chrysoberyl
chrysocolla
chrysolite
chrysotile
churchite
cinnabar
clarkeite
clay
claystone
clinoptilolite
coal
cobaltite
cobalt ore
codazzite
coffinite
coke
conglomerate
cooperite
copper ore
coral
corundum
covellite
crocidolite
crude oil
cryolite
cubanite
cummingtonite
cuprite
curite

dachiardite
dacite
davidite
delorenzite
dewindtite
diamond
diaspore
diatomite
dietzite
diopside
diorite
dioptase
dolomite
dolomitic lime
dumontite
dunite

edingtonite
emerald
emery
enargite
enstatite
epistilbite
epsomite
erikite
erionite
eschwegeite
eucryptite

faujasite
fayalite
feldspar group minerals
ferberite
ferghanite
ferrierite
fire clay
flint clay
fluocerite
fluorapatite
fluorite
fluorspar
flyash
forsterite
fourmarierite
franklinite
fuchsite
fuller's earth

gabbro
gadolinite
gahnite
galena
gallite
garnet
garnierite
garronite
gaylussite
gem stones
germanite
geocronite
gersdorffite
geversite
gibbsite
gismondine
glauberite
glaucodot
glauconite
glaucophane
goethite
gmelinite
gold ore
gonnardite
granite
granite pegmatite
granodiorite
graphite
gravel
greenalite
greenockite
greensand
grunerite
gummite
gypsite
gypsum

halite
halite ores
halloysite
harmotome
hardystonite
hastite
hatchettolite
hauynite
hectorite
hedenbergite
hellandite
hematite
hemimorphite
hercynite
herschelite
hetaerolite
heterogenite
heulandite
hexagonite
hollingsworthite
hornblende
howlite
huebnerite
hutchinsonite
hyalophane
hydroboracite
hydrohetaerolite
hydrothorite
hydroxyapatite
hyperstene

ianthinite
illite
ilmenite
ilmenorutile
ilsemannite
inyoite
irarsite
iron ore
ishikawaite

jacobsite
jadeite
jamesonite
jarosite
johannite
johnstrupite
jordisite

kalkowskite
kaolin
kaolinite
kasolite
kehoeite
kernite
kieserite
knopite
koppite
kyanite

labradorite
lanthanite
lapis lazuli
laumontite
lauterite
lazurite
lead ore
lemontite
lepidocrocite
lepidolite
lessinglite
leucite
leucoxene
levynite
lignite
limestone
limonite
linnaeite
lizardite
loellingite
loparite
lorandite
ludwigite-paigeite

mackintoshite
maghemite
magnesioferrite
magnesite
magnetite
malachite
manganese ore
manganite
marble
marcasite
marl
marmatite
melanocerite
mendelyeevite
mercury ore
mesolite

metacinnabarite
mica
michenerite
microcline
microsommite
minnesotaite
mirabilite
molybdenite
molybdenum ore
monazite
moncheite
montmorillonite
mordenite
mosandrite
mudstone
mullite
muscovite

nagatelite
nagyagite
nahcolite
native copper
natrolite
natural gas
natural gas condensates
nepheline syenite
nephelite
niccolite
nickel ore
niter
noselite
novaculite

ochre
offretite
otavite
oil shale
oligoclase
olivine
opal
orpiment
orthoclase

paristе
parsonite
pavlingite
pearceite
pearl
peat
pectolite
pegmatite
pentlandite
periclase
peridotite
perlite
perovskite
petalite
petroleum
phenacite
phillipsite
phlogopite
phonolite
phosphate rock
phosphates
phosphorite
picrolite
pisekite
pitchblende
plagioclase
platinum ore
plumboniobite
pollucite
polybasite
polycrase
polygorskite
polyhalite
polymignite
potash
potassium prehnite
powellite
prehnite
priceite
proustite
pumice
pumicite

pynnhotite
pyrargyrite
pyrite
pyrolusite
pyrophyllite
pyroxene group minerals
pyroxene augite
pyroxene hypersthene
pyroxenefyalite
pyroxenite
pyrrhotite

quartz group minerals
quartzite

rammelsbergite
rare earths
rauvite
realgar
renardite
renierite
resins
retzian
rhabdophanite
rhodochrosite
rhyolite
rhodonite
richterite
riebeckite
rinkite
rinkolite
rock salt
rosasite
rottenstone
rowlandite
ruby
rutherfordline
rutile

safflorite
salt
samiresite
sand
sandstone
saponite
sapphire
sartorite
sassolite
saxonite
scheelite
schefferite
schist
scolecite
scoria
searlesite
sepiolite
sericite
serpentine
shale
shale oil
shard
siderite
silica
silica sand
silica stone
sillimanite
silts
siltstone
silver ore
skodowskite
skutterudite
slate smaltite
smithsonite
soapstone
sodalite
soddyite
sperrylite
sphalerite
spinel
spodumene
stannite
staurolite
steatite
stellarite
stibiconite
stibnite

stitchtite
stilbite
stilpnomelane
stromeyerite
strontia
strontianite
sylvanite
sylvite

taconite
talc
teepleite
tennantite
tengerite
tetrahedrite
thalenite
thenardite
thompsonite
thoria
thorianite
thorite
thorogummite
thortveitite
tin ore
titanium ore
topaz
torbernite
tornebohmite
tourmaline
travertine
tremolite
tripoli
tritomite
troegerite
trona
tscheffkinite
tuff
tungsten ore
turquoise
tyuyamunite

uraninite
uranium ore
uranocircite
uranophane
uranopilite
uranosphaerite
uranospathite
uranospinite
uranothallite
urbanite
urea
uvanite

vanadium ore
vermiculite
viseite
vrbaite
vysotskite
voglite
volcanic glass
voltzite

wairakite
wallonstonite
walpurgite
water
weinschenkite
wolframite
wollastonite
wurtzite

xenotime

yttrialite
yttrocerite
yttrocrasite
yttrofluorite
yugawavelite

zeolites
zeunerite
zinc-copper chalcanthite
zinc-copper melanterite
zincite
zinc ore
zinkenite
zippeite
zircon
zirkelite

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